AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented) A method for generating an atmospheric pressure glow discharge plasma (APG) for treating substrates comprising the steps of:

providing a plurality of opposing plate electrodes to define a discharge space for forming said APG plasma there between,

spacing the opposing plate electrodes by a gap ranging from 100 μm to 5000 μm,

supplying a continuous stream of gaseous substance into the discharge space,

providing power to the plate electrodes sufficient to form a uniform electric field between the plate electrodes and generating a stable glow plasma there between,

controlling the power being provided in the form of an AC-voltage is applied to said plate electrodes to be at an amplitude that is equal to or less than 140 % of the breakdown voltage of said gaseous substance provided within the discharge space and at a frequency of at least 50 kHz, and

maintaining the relationship between the AC voltage and the breakdown voltage as the gaseous substance is being supplied and the plasma continues to be generated to thereby control and reduce the temperature applied to the substrate.

Claim 2. Cancelled

3. (Previously Presented) The method according to claim 1, wherein said AC-voltage amplitude is between 110% and 120% of said breakdown voltage.

4. (Previously Presented) The method according to claim 1, wherein the temperature of said gaseous substance is lower than 100 C.

5. (Previously Presented) The method according to claim 49, wherein at least one further gas is provided to said gaseous substance in said discharge space.

6. (Previously Presented) The method according to claim 5, comprising at least

the steps of: providing said further gas to said discharge space after essentially stabilizing said plasma such that the concentration of said further gas is fractionally increased stepwise; and stabilizing said plasma by adjusting said AC-voltage after each stepwise increment of said concentration of said further gas.

7. (Currently Amended) The method according to claim 5 [[49]], wherein said at least one further gas is provided to said gaseous substance in a concentration of at most 50% by volume.

8. (Previously Presented) The method according to claim 7, wherein said concentration is at most 20% by volume.

9. (Previously Presented) The method according to claim 5, wherein said at least one further gas provided to said gaseous substance in said discharge space is comprised of at least one of a group of O_2, $C0_2$, NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics and combinations thereof.

10. (Previously Presented) The method according to claim 9, wherein said gaseous substance provided in said discharge space is flowed through said discharge space, establishing a gas flow.

11. (Previously Presented) The method according to claim 10, wherein said gas flow has a flow rate in a range of 1 l/min to 50 l/min.

12. (Previously Presented) The method according to claim 10, wherein the velocity of the gas flow is in the range of 0.1-10 m/s.

13. (Previously Presented) The method according to claim 12, wherein the velocity of the gas flow is in the range of 1-5 m/s.

14. (Previously Presented) The method according to claim 1, wherein said AC-

voltage is chosen to comprise a frequency less than 1 MHz.

15. (Previously Presented) The method according to claim 14, wherein said frequency of the AC-voltage is chosen within a range of 100 kHz to 700 kHz.

16. (Previously Presented) The method according to claim 1, wherein a residence time for treating a thermoplastic polymer film in said discharge space is chosen such that said thermoplastic polymer film is kept at a temperature below a glass transition temperature of a thermoplastic polymer film.

17. (Previously Presented) The method according to claim 16, wherein said residence time is controlled by moving said film through said thermoplastic polymer discharge space while controlling the velocity of said thermoplastic polymer film.

18. (Previously Presented) The method according to claim 16, wherein the amplitude of said AC-voltage is chosen such that the temperature of the discharge space remains below a glass transition temperature of said thermoplastic polymer film during treatment of said thermoplastic polymer film and for maintaining said glow plasma.

19. (Previously Presented) The method according to claim 16, wherein said thermoplastic polymer film comprises at least one of a group comprising triacetyl cellulose(TAC), polyethyleneterephthalate (PET), polyethylene- naphthalate (PEN) and similar thermoplastic polymers.

20. (Previously Presented) The method according to claim 1 wherein at least one of said plate electrodes is covered with a film of dielectric material.

21. (Previously Presented) The method according to claim 20, wherein said film of dielectric material is chosen comprising a thickness in a range of 1 μm to 1000 μm.

22. (Previously Presented) The method according to claim 21, wherein said

thickness lies within a range of 250μm to500 μm.

23. (Cancelled)

24. (Previously Presented) The method according to claim 1, wherein the gap spacing is chosen within a range of 250 μm to 1500 μm.

25. (Previously Presented) The method according to claim 1, wherein a voltage rise time defines a shortest time interval for said AC-voltage to reach its maximum value starting from zero, and wherein said voltage rise time of the AC-voltage is in the range of 0.1 to 10 kV/μs.

26. (Previously Presented) The method according to claim 1, wherein current density through said plasma is less than 10 mA/cm^2.

27. (Previously Presented) The method according claim 1, used for treating a substrate in said discharge space with a chemical vapor deposition process using said plasma.

Claims 28 to 46 Cancelled

47. (Previously Presented) The method according to claim 7, wherein said at least one further gas provided to said gaseous substance in said discharge space is comprised of at least one of a group of O_2, $C0_2$, NH_3, common precursor gasses such as SiH_4, hydrocarbons, organosilicons such as TEOS and HMDSO, or organo-metallics and combinations thereof.

48. (Cancelled)

49. (Previously Presented) The method according to claim 1 wherein the gaseous substance comprises at least one of a group comprising argon, nitrogen and air.

50. (Previously Presented) A method for generating an atmospheric pressure glow discharge plasma (APG) and for treating a substrate under controlled temperature conditions, wherein a plurality of opposing plate electrodes are arranged defining a discharge space there between in which the APG plasma is formed and through which a substrate to be treated thereby is moved, wherein said plate electrodes are connected to a power supply and an AC-voltage is applied to said plate electrodes, and wherein a gaseous substance is provided into said discharge space in the form of a carrier gas including at least one of a group comprising argon, nitrogen and air, wherein said AC-voltage applied to said electrodes has an amplitude equal to or less than 140% of a breakdown voltage of said gaseous substance and has a frequency of at least 100 kHz, with the type, concentration or composition of the carrier gas being modified by the addition of further gases while the glow discharge plasma is in operation, and wherein the amplitude of the AC-voltage is variable and controlled to be dependent upon the breakdown voltage of the changing gaseous substance as it is modified to maintain their relationship to thereby control and reduce the temperature applied to the substrate being treated by said APG plasma for preventing thermal damage to the substrate.